

Faculty of Fisheries and Marine Sciences, IPB University

Subject title:	Advanced Fish Nutrition	Semester	1
		Credit	2
Keywords	Fish nutrition, nutritional, aquaculture		
Professor:	Professor M. Agus SUPRAYUDI Professor Dedi JUSADI Associate Professor Mia SETIAWATI Associate Professor Julie EKASARI Assistant Professor Ichsan A. FAUZI		
Contact office	Department Aquaculture building, 3 rd floor, IPB University		
Contact hours	After class		
Target	Upon the completion of this course, the student will be able to explain fundamental aspects of fish nutrition, including various approaches to fulfil the nutrient requirement of the cultured organisms, by taking into account the nutrient balance, the interaction between nutrients, the animal's developmental stages and species, as well as the culture environment.		
Description	The course covers the fundamental aspects of fish nutrition, including digestion processes, bioenergetics, macro and micro nutrients requirement of aquaculture organisms as well as the theory and practice in nutritional assessment in feed and feeding in aquaculture.		
Class schedule:	<ol style="list-style-type: none">1. Definition and scope of fish nutrition2. Digestion processes:<ul style="list-style-type: none">• morphology of digestive tract of aquatic organisms• enzymatic processes in digestion processes3. Feed raw materials:<ul style="list-style-type: none">• plant-based raw materials• animal-based raw materials• feed additives4. Protein:<ul style="list-style-type: none">• its functions in aquaculture organisms,• its requirement and relation to non-protein energy,• protein utilization efficiency,• utilization of protein in growth and reproduction5. Carbohydrate:<ul style="list-style-type: none">• Its functions in aquaculture organisms• utilization of carbohydrate in different species• its requirement and role in growth and reproduction6. Lipids:<ul style="list-style-type: none">• its functions in aquaculture organisms• essential fatty acids synthesis mechanisms in aquaculture organisms• lipid requirement• its role in growth and reproduction, and larvae development7. Minerals:<ul style="list-style-type: none">• its functions in aquaculture organisms• its requirement and interactions with other nutrients• its role in growth and reproduction8. Vitamins:<ul style="list-style-type: none">• its functions in aquaculture organisms		

- its requirement and interactions with other nutrients
 - its role in growth and reproduction
9. Nutrition and health

Important items:	-
Self-studies and other advices	Homework needs searching and summarizing a journal paper after a class and preparing reports for the next class.
Textbooks	Prepared by the professor each time
Requisites to take subject:	Unconditional and no prerequisite
Assessment method:	Examination and continuously assessment on the report and participation into Class and discussion.
Evaluation criteria	A \geq 80, 75 \leq AB < 80 70 \leq B < 75, 65 \leq BC < 70 60 \leq C < 65, 55 \leq D \leq 59
Relevant matters	Explanations in English

Faculty of Fisheries and Marine Sciences, IPB University

Subject title	Fisheries Management With An Ecosystem Approach	Semester Credit	2 2
Key word	fisheries resources, ecology, economy and social system		
Professor	Professor Yonvitner Professor Mennofatria BROER Professor Luky ADRIANTO Associate Professor M. Mukhlis KAMAL		
Contact office	Department of Aquatic Resources Management building, IPB University		
Contact hours	After class		
Target	Integration fisheries resources, ecology, economy and social system on fisheries management system as a complex system for better management.		
Description	Fisheries management regime. Fisheries management paradigm; global, regional and national policies in the field of coastal and ocean management; effectiveness of ICM.		
Class schedule:	Introduction to ecosystem approach for fisheries management (EAFM) Fisheries Conectivity on Fisheries Management Ecosystem Context on EAFM Introduction of Fish Stock Assessment Ecological context on EAFM CBD In Term of Conservation and Biological Use Fisheries Resources on Approach EAFM Production and Growth of Fisheries Resources Fishing Technology Approach on EAFM Integration Multi System on EAFM Population and Growth Rate EAFM Practice and Implementation in Indonesia Fisheries Context Social Economy Approach on EAFM Legislation and Governance Approach on EAFM		
Important items:	-		
Self-studies and other advices	Homework needs searching and summarizing a journal paper after a class and preparing reports for the next class.		
Textbooks	Prepared by the professor each time		
Requisites to take subject:	Unconditional and no prerequisite		
Assessment method:	Examination and continuously assessment on the report and participation into Class and discussion.		
Evaluation criteria	A ≥ 80, 75 ≤ AB < 80 70 ≤ B < 75, 65 ≤ BC < 70 60 ≤ C < 65, 55 ≤ D ≤ 59		
Relevant matters	Explanations in English		

Faculty of Fisheries and Marine Sciences, IPB University

Subject title: Fish Stock Assessment Semester 2
Credit 2

Key word Fish management, fish stock, Stock estimation techniques

Professor: Professor Mennofatria BOER
Associate Professor Rahmat KURNIA

Contact office Department of Aquatic Resources Management building, IPB University

Contact hours After class

Target Fisheries management rely on models, in particular surplus production, yield per recruit, biomass per recruit, dynamic optimization, that predict a population's responses to exploitation. Fish Stock Assessment introduces approaches that are commonly used to assess and evaluate the dynamics and status of a population in the context of Indonesian Economic Exclusive Zone. This course provides an overview of the terminology, data requirements especially length-based frequency, underlying rationale, assumptions, limitations and uncertainty associated with stock assessments.

Description Stock estimation techniques both analytically/structurally, globally and in combination (holistic). The discussion is carried out through simple models and more complex models such as surplus yield models and catch forecasting as well as dynamic pool models that are needed in the management of sustainable fisheries resources. Verification and validation of the use of models to the effects of fishing on stocks, and evaluation and simulation for management fisheries resources.

Class schedule:

Topic
Introduction to fish stock assessment
Fish length frequency (1)
Fish length frequency (2)
Fish length frequency (3)
Surplus Production Model (1)
Surplus Production Model (2)
Indonesia's Economic Exclusive Zone
Field Per Recruit and Biomass Per Recruit Models
Journal Presentation
Virtual Population Analysis
Journal Presentation
Surplus Production Model and Bioeconomy
Dynamic Optimal Model
Dynamic Optimal Multi Species Model

Important items:

Self-studies and other advices	Homework needs searching and summarizing a journal paper after a class and preparing reports for the next class.
Textbooks	Prepared by the professor each time
Requisites to take subject:	Unconditional and no prerequisite
Assessment method:	Examination and continuously assessment on the report and participation into Class and discussion.
Evaluation criteria	$A \geq 80$, $75 \leq AB < 80$ $70 \leq B < 75$, $65 \leq BC < 70$ $60 \leq C < 65$, $55 \leq D \leq 59$
Relevant matters	Explanations in English

Faculty of Fisheries and Marine Sciences, IPB University

Subject title	Marine Biotechnology And Cosmeceuticals	Semester	1
		Credit	2

Key word Marine biotechnology, cosmeceuticals, bioprocess

Professor Professor Iriani Setyaningsih
Associate Professor Kustiariyah
Assistant Professor Safrina Dyah Hardiningtyas

Contact office Department of Aquatic Products Technology building, IPB University

Contact hours After class

Target After joining this course the students are competence to describe what is aquatic product biotechnology, its resources and its various processes and products. The students are qualified to design and conduct screening on marine bioactive ingredients applying conventional and molecular technique and their application on marine cosmeceutics.

Description This course describes the definition of biotechnology and its application on the development of processes and products from marine biological resources. It covers the conventional and molecular method to screen bioactive ingredients, process development and their application for cosmeceutical products. Commercialization of biotechnological products. To improve the understanding toward biotechnological processes and products.

Class schedule:

Topic
The sustainable exploration and exploitation of marine natural resources for the development of marine bioactive ingredients
Introduction of cosmeceutical: requirements for natural and organic cosmetic certification
Microalgal biotechnology and Development of a cosmeceutical product based on microalgae
Marine Fungal biotechnology
Mid Test
Potential of bioactive compound derived from mollusk and mangrove for developing cosmeceutical product
Development of marine nanocosmetic
Commercialization of biotechnological product
Final Test

Important items:

Self-studies and other advices Homework needs searching and summarizing a journal paper after a class and preparing reports for the next class.

Textbooks Prepared by the professor each time

Assessment method : Mid and Final exam, systematic review paper assignment and quiz.

Evaluation criteria	$A \geq 80$, $75 \leq AB < 80$ $70 \leq B < 75$, $65 \leq BC < 70$ $60 \leq C < 65$, $55 \leq D \leq 59$
Relevant matters	Explanations in English

Faculty of Fisheries and Marine Sciences, IPB University

Subject title	Fisheries Acoustics	Semester	2
		Credit	3
Key word	fisheries acoustic.		
Professor	Professor Sri PUJIYATI Professor Indra JAYA		
Contact office	Department of Marine Science building, IPB University		
Contact hours	After class		
Target	To give students the understanding of theory and application of fisheries acoustic.		
	<ol style="list-style-type: none"> 1. General Learning Outcome Upon successful completion of this course the student will be able to explain the history acoustic, operation of underwater acoustic equipment, Design Survey and application of fisheries acoustic 2. Specific Learning Outcome Upon successful completion of this course the student will be able to: <ol style="list-style-type: none"> a. Explain the history, Acoustic terminology and symbols b. Operate the underwater acoustic instrument c. Know properties of underwater target d. Create a measurement design in a controlled and field condition 		
Description	<ol style="list-style-type: none"> 1. Apply Fisheries acoustic for TS,SV, stock assessment This course introduces knowledge of basic formulas, backscatter from single and multiple targets, integration of pelagic fish - bottom fish, bioacoustics, pinger acoustics and acoustic descriptors.		

Class schedule:

week	Material Study (Material Lesson)	
(1)	(2)	
1	Contract Lectures, Introduction	
2	a. Instruments acoustic b. Calibration acoustic	
3	Basic Formula	
4-5	Targets and Target Characteristics	
6	Trajectory Survey	
7	Single target detection And the measurement	
8	UTS	
9	Multiple target detection And the measurement	
10-11	Definition fish pelagic , method data collection and target integration	
12-13	Definition fish demersal , method data collection and target integration	
14-15	Terms use descriptor acoustic and discriptor parameters acoustic	

Important items:

Self-studies and other advices

Homework needs searching and summarizing a journal paper after a class and preparing reports for the next class.

Textbooks

Prepared by the professor each time

Requisites to take subject:

Unconditional and no prerequisite

Assessment

method:

No	Criteria	Range	Percentage (%)	Note
1	Mid exam	0 – 100	20	
2	Final exam	0 – 100	20	
3	Result Project	0 – 100	30	
4	Activity Participative	0 – 100	15	Including practical class
5.	Assignment	0 – 100	15	

Evaluation criteria

$A \geq 80$, $75 \leq AB < 80$
 $70 \leq B < 75$, $65 \leq BC < 70$
 $60 \leq C < 65$, $55 \leq D \leq 59$

Relevant matters

Explanations in English